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ABSTRACT

This study investigated factors influencing the drop-out rate of minority college students as compared to that of non-minority students. Data were collected via mailed questionnaire from 799 freshmen at the University of Missouri-Columbia, a residential, public research university in the Midwest. The questionnaire evaluated such factors as parental encouragement and faculty-student interaction, perceptions of discrimination, congruence of values with the values of faculty and students at an institution, academic and social integration, academic achievement, student satisfaction, student perceptions of their development, institutional commitment, goal commitment and student intent to persist as possible factors affecting the retention rate of students. Findings indicated lower levels of entering ability and subsequent academic achievement for minority students, a strong correlation between institutional commitment and intent to persist, a high negative correlation between perceptions of discrimination and academic integration, a high correlation between perception of quality and intent to persist, and a high correlation between encouragement from family and friends and intent to persist. Generally, there were few substantive differences between minority and non-minority students. Three tables and one figure of the constructs and paths tested in the hypothesized causal model are included. (Contains 48 references.) (CK)

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Minority and Non-Minority Adjustment to College: Differences or Similarities?

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Jean Endo
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Minority and Non-Minority Adjustment to College: Differences or Similarities?

Abstract

Using a model of retention, this study focused on minority and non-minority students' adjustment to college. Data were collected via mailed questionnaire from 799 freshmen at a residential, public research university in the Midwest. Path analysis was used to test the model. Results indicated that perceived quality had significant effects on intent to persist for minorities but not for non-minorities, and, academic achievement had significant effects on intent to persist for non-minorities but not for minorities. Similarities between the two groups, however, clearly overshadowed differences. For instance, perceived racial discrimination exerted equivalent effects (although weak) on intent to persist for minorities and non-minorities.

INTRODUCTION

Particularly in the past decade, several colleges and universities have intensified their efforts to recruit and enroll minority students. Through effective marketing and attractive scholarship packages, these institutions have enhanced the diversity of their undergraduate student bodies in a short period of time (e.g., Gose, 1994). It is, however, one thing to recruit minority students and another to retain these students. Findings indicate that African American and Hispanic students are more likely to drop out of college than their non-minority counterparts (Porter, 1990; de los Santos & Rigual, 1994; Wilson, 1994). Although several institutions can boast of successfully recruiting minority students, relatively few can do the same for their ability to retain these same students.

As colleges and universities strive to embrace diversity and provide all students an opportunity to succeed, important questions are raised: Why are minority students more likely to drop out than non-minority students? Do factors, such as parental encouragement or faculty-student interaction, affect the college adjustment process for minority students in the same way they affect the process for non-minority students? These questions are the focus of this study.

REVIEW OF LITERATURE

Theoretical Premises for Understanding Student Persistence

Much of the empirical research on undergraduate retention for both minorities and non-minorities has relied on the theoretical premises advanced by Tinto (1975, 1986), Bean (1980, 1982, 1983), Bean and his associates (Bean & Vesper, 1990; Metzger & Bean, 1987), Cabrera and Nora (1993, 1994, 1996), and Cabrera, Castañeda, Nora, and Hengstler (1992). Drawing heavily on the work of Durkheim (1951) and his theory of suicide, Spady (1970) observed that the behaviors of students who drop out are analogous to the behaviors of those who contemplate suicide. That is, individuals considering suicide choose to withdraw from society because they lack shared values and normative support. Similarly, students persist or withdraw from college depending on their social and intellectual experiences within the college community. Tinto (1975) enhanced the work of Spady by introducing a longitudinal, predictive model that explained more specifically the process that students goes through before dropping out of college (Pascarella & Terenzini, 1980). Persistence in college is a function of social and

academic integration. High levels of integration in both spheres is more likely to lead to commitment, and commitment is more likely to lead to persistence (Tinto, 1975). Thus, students who become fully integrated both socially and academically are more likely to become committed to the institution and committed to securing a college degree. Tinto (1986) also employed Van Gennep's (1960) "rites of passage" to enhance this theoretical framework. That is, college students go through rites of passage themselves, separating from family and childhood support, experiencing transition where they begin to assimilate new values and behaviors, and then fully incorporating these values and behaviors. Students who fail to complete successfully these rites are more likely to leave college.

Bean (1980, 1982, 1983) and Bean and his associates (Bean & Vesper, 1990; Metzner & Bean, 1987) introduced a compatible model based on employee turnover in organizations (Price, 1977; Fishbein & Ajzen, 1975). Bean's model suggested a cyclical pattern whereby a student's beliefs are influenced by his or her experiences. These beliefs in turn affect the student's attitude toward the college, and, accordingly, the student's attitude influences intentions (i.e., intent to stay or leave college) and behavior (i.e., actually staying or leaving). Bean (1980, 1983) and Metzner and Bean (1987) also placed considerable emphasis on external factors (e.g., significant others) believed to influence a student's decision to stay or leave college.

Although each of these theories has contributed significantly to our understanding of student retention, merging the unique and similar premises into a single model may prove to be more effective in explaining persistence than either model by itself (Cabrera, Castañeda, Nora & Hengstler, 1992). Thus, more recent empirical studies that have examined potential differences between minorities and non-minorities have relied on a theoretical model that blends the most salient features of both theories (e.g., Cabrera & Nora, 1994; 1996).

Minorities and Retention

Although minorities cannot be considered a homogeneous group, several studies of college persistence have suggested that minority students, in general, encounter common experiences that are different than those of non-minority students. Academic integration has been suggested to have a particularly important influence on minority student persistence (Donovan, 1984; Terenzini, Rendon, Upcraft, Millar, Allison, Gregg, & Jalomo, 1994).

Using path-analysis based on Tinto's model (1975), Donovan noted that college experiences, particularly academic integration, had a more significant effect on persistence among African Americans than pre-college characteristics. Interviewing minority and non-minority students at four institutions, Terenzini et al. concluded that non-minority students were primarily concerned about developing friendships and becoming socially integrated into the college life. Minority students, on the other hand, were more likely to express apprehension about the academic rigors of college and shared sincere concerns about becoming academically integrated. Contrary to Donovan's findings, however, Cabrera and Nora (1996) reported that pre-college characteristics did affect minority persistence at a large, urban university. Using path-analysis with a sample of African-American, Hispanic, Native American, and Asian-American freshmen, the researchers concluded that academic ability had a direct effect on academic performance and an indirect effect on persistence.

Tinto (1986) contended that students were more likely to persist in college when they separate, to varying degrees, from family and pre-college friends. In general, this contention has been challenged in recent research (see Cabrera & Nora, 1994) as support from significant others, or lack thereof, has been described as having an important impact on minority student persistence (Terenzini et al., 1994; Bean & Hull, 1984; Hendricks, Smith, Caplow, & Donaldson, in press). Hendricks et al. interviewed minority students enrolled in professional programs at a large research university. Minority students in their interviews repeated a common and pervasive theme: parents and significant others (e.g., clergy, siblings, extended family, etc.) had an important impact on their decision to continue in college. Although family and pre-college friends can be a source of support for college students, Terenzini et al. also pointed out that they can have an equally negative influence on persistence. For example, some minority students reported that family and ethnic traditions (e.g., an obligation to support your immediate family) hindered their separation from home and transition to college. Similarly, the decision to attend college for first-generation minority students was considered a "break from tradition" and not, as in many non-minority cases, an extension of tradition (Terenzini et al., 1994). In recent empirical investigations, researchers have demonstrated that external support does influence the decision to persist among minority students (e.g., Cabrera & Nora, 1996; Bean & Vesper, 1992; Nora & Cabrera, 1994). However, the relationship between external support and persistence among non-minority populations has been demonstrated in these studies as well.

Feelings of isolation or not belonging have also been hypothesized to influence minority student persistence (Viernes Turner, 1994; Munoz, 1987; Loo & Rolison, 1983; Suen, 1983). Loo and Rolison (1983) and Suen (1983) reported that minority students were significantly more likely to express feelings of isolation or alienation than were non-minority students. In one case, minority students who expressed high levels of isolation and alienation were also more likely express their intention to withdraw from college (Loo & Rolison, 1983).

The relationship between an individual's perception of prejudice and his or her decision to stay or leave college has been frequently studied (e.g., Bean & Hull, 1984; Flemming, 1984; Hendricks et al., in press; Viernes Turner, 1994; Cabrera & Nora, 1996; Tracy & Sedlacek, 1984, 1985, 1987; Nettles, Thoeny, & Gosman, 1986). Flemming (1984) posited that African-American students often experience problems with finances, support services, faculty and staff, other students, and the curriculum at predominantly non-minority campuses. Where non-minority students expressed dissatisfaction with excessive rules and regulations on campus, Bean and Hull (1984) noted that minority students perceived these same rules and regulations as white faculty and administrators tying to control their lives. Although perceptions of prejudice did have a negative effect on the social and academic integration of minority students, Cabrera and Nora (1996) concluded that it did not have as significant of an effect on the college adjustment process as the literature might have previously suggested. In fact, academic performance, parental support, academic and intellectual development, and social integration had greater effects on minority student persistence than the influence of perceptions of prejudice.

At the same time, findings indicate that minority students who have persisted despite experiencing racial prejudice have developed mechanisms to help them cope with these experiences (Cabrera and Nora, 1996; Hendricks et al., in press; Tracey & Sedlacek, 1984, 1985, 1987). Successful minority students, according to Hendricks et al., had learned how to de-personalize incidents of prejudice in an effort to be successful in college and persist. Likewise, Tracey and Sedlacek (1984, 1985, 1987) contended that a minority student's ability to cope with racial prejudice on campus had a more important influence on persistence than the student's entering academic ability. In fact, the ability to de-personalize prejudice may have accounted for Arbona and Novy's (1990) finding that students who reported high levels of prejudice were not necessarily more likely to drop out of college.

Purpose of the Study

Research addressing minority students and their college adjustment experience has made important advances in the past several years. The theoretical models of retention introduced in the early seventies have been enhanced and refined to include factors that may be more sensitive to the adjustment process experienced by minority students. Qualitative studies have provided richer descriptions of the adjustment process from the minority student's perspective. In addition, the variety, and at times, the inconsistency of the findings clearly highlight the importance of the research method and research context in understanding and interpreting this phenomenon.

With the exception of a recent study by Cabrera and Nora (1996), however, few studies have empirically demonstrated whether factors considered in a model of persistence exert different effects on persistence as a result of a student's minority or non-minority status. The purpose of this study was to identify the similarities and differences among minority and non-minority freshmen using a theoretically-based model of persistence. More specifically:

1) How well does the proposed model of college persistence explain intent to persist for both minority and non-minority first-time freshmen?

2) What specific characteristics or factors in the model differ in terms of explaining minority and non-minority students' intention to persist in college?

The significance of this study is threefold. First, this study employed a comprehensive model of student persistence that intentionally included factors that were perceived to be sensitive to the college adjustment process experienced by minority students. Second, this study is unique because it includes a sample of minority and non-minority students who attend a large, residential university. In addition, the majority of these students lived on campus. Third, this study was designed to specifically examine differences between minority and non-minority students while limiting several of the threats to validity that have afflicted pervious studies.

METHOD

Subjects

The setting for this research was the University of Missouri–Columbia (MU). With an enrollment of almost 16,500 undergraduate and 5,700 graduate and first-professional students, MU is the state's land grant institution and a Carnegie Research I university. Because of low levels of minority enrollment in Fall 1993, MU's Chancellor made a commitment to increase the number of minority students, particularly African-American undergraduate students, attending the university in Fall 1994 (Gose, 1994). Enhanced recruiting, coupled with expanded minority scholarships, resulted in 335 African-American first-time-freshmen at MU in Fall 1994. This total was almost three and one-half times the number of African-American students in the Fall 1993 freshman class.

In April 1995, the MU Freshman Survey was administered to approximately 2,500 students from the Fall 1994 FTC cohort. Slightly more than 1,000 students were excluded, either because they were international students or because they were participating in a statewide assessment survey. In addition to the initial mailing, a postcard follow-up and a reminder letter were used to increase response rates. A total of 1,006 students returned the survey for a response rate of slightly more than 40 percent. Slightly more than 200 of the respondents were excluded due to one or more pieces of missing data, leaving a research sample of 799 students. Approximately 64 percent of the students in the study were female, and 86 percent were Caucasian. Slightly less than 7 percent of the students were African American, and the remaining 5 percent were from other minority groups. The mean ACT score for the students in this study was 25.5. Their mean cumulative grade point average was 2.94.

Comparing the background characteristics of respondents and non-respondents revealed that there were no statistically significant differences between subjects in this study and other Fall 1994 FTC students in terms of the representation of minority groups and academic disciplines. Females were significantly more likely than males to respond to the survey and be included in the present study. Likewise, high ability students were somewhat more likely to be included in this study. Although gender and ability differences were statistically significant, they explained less than 5 percent of the variance in students' background characteristics.

Measures

The MU Freshman Survey is a multipurpose self-report instrument that is designed to measure how the college experiences of freshmen influence their success at MU. The parts of the survey focusing on the relationships between college experiences and persistence draw heavily on the models of Tinto (1975), Bean (1980), and Cabrera, Nora, and their colleagues (Cabrera, Castañeda, Nora, & Hengstler, 1992; Cabrera, Nora, & Castañeda, 1994). These models all posit that students' background characteristics and college experiences influence their academic and social integration into university life. Background characteristics, college experiences, and integration in turn influence institutional commitment and goal commitment, which all ultimately influence intent to persist and persistence.

Bean, along with Cabrera, Nora, and their colleagues, posit the existence of a set of intermediate outcomes between integration and commitment. These outcomes include academic achievement, satisfaction, and students' perceptions of their learning and development. Figure 1 depicts the major constructs (ellipses) in the MU Freshman Survey. Hypothesized effects are represented by lines between constructs, with arrows indicating the direction of the relationships. Not shown are correlations among the constructs at each level in the model.

Insert Figure 1 about here

Entering Ability. Research at MU and elsewhere has shown that students' entering abilities are an important determinant of their academic success. At MU, for example, students with predicted freshman grade point averages of 3.00 are almost twice as likely to graduate in five years as are students with predicted grade point averages below 2.35 (Li & Pike, 1995). Consistent with previous research, this study used students' predicted freshman year grade point averages to represent their entering ability (Saupe & Long, 1996).

External Encouragement. Bean's (1980) model of student attrition, as well as the model used by Cabrera and Nora (1994), focuses attention on the support students receive from parents and friends. These researchers have found that external support and encouragement has a significant positive effect on student persistence. Only two items represent this construct in the freshman survey: (1) My family encourages me to continue my college

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education at MU. (2) My close friends encourage me to continue my college education at MU. Theta reliability (Armor, 1974), which is less affected by the number of items included in a scale, was 0.73 for external encouragement.

Perceptions of Discrimination. Research by Cabrera and Nora (1996) has shown that college students' perceptions of prejudice and discrimination, acting through classroom experiences have a significant negative effect on student persistence. Questions from Cabrera and Nora's research were used in the freshman survey. The items asked students to report both on how frequently they had witnessed and how frequently they had been the victims of prejudice or discrimination. Theta reliability for this scale was 0.91.

Affinity of Values. The effects of students' perceptions of the congruence of their values with the values of faculty and students at an institution are just beginning to be studied (Nora & Cabrera, 1994). The freshman survey contained a two-item measure of affinity of values: (1) Most of the students at MU have values and attitudes similar to my own. (2) Most of the faculty and staff at MU have values similar to my own. Theta reliability for the two-item affinity of values scale was 0.67.

Faculty-Student Interaction. The amount and quality of students' informal interactions with faculty outside the classroom has been shown to be a consistent predictor of student persistence (Pascarella & Terenzini, 1977, 1980). The six-item scale developed by Pascarella and Terenzini (1977) asks students to report on the amount of time they were engaged with faculty on various topics, such as academic programs, future careers, and personal problems. This scale was included in the freshman survey. Theta reliability for the scale was 0.74.

Academic Integration. Tinto's (1975) model of student departure emphasizes the importance of academic integration. According to Tinto (1975), academic integration represents a combination of a students' academic involvement and success. The items included in the survey measure both involvement and success. The items were drawn from scales used by Donovan (1984) and Castañeda, Nora, and Hengstler (1992). Theta reliability for the five-item academic integration scale was 0.73.

Social Integration. Tinto's model also emphasizes the importance of students' social integration into university life. Items previously used by Donovan (1984) and Cabrera, Castañeda, Nora, and Hengstler (1992) were included in the survey. These items focused on the amount of time students spent on campus and the strength of

their peer acquaintances. Theta reliability for the scale was 0.79.

Academic Achievement. In Cabrera and Nora's (1994) model, academic achievement is represented by students' cumulative grade point averages. The same measure is included in analyses of responses to the freshman survey.

Perceived Quality Satisfaction. Bean's (1980) model of student attrition includes satisfaction with college as an important variable in the dropout decision. In the freshman survey five items were adapted from earlier surveys developed at the University of Tennessee, Knoxville. These items focused on students' perceptions of academic quality, satisfaction with academic and social experiences, and whether they would recommend MU to a friend. Theta reliability was 0.83.

Perceptions of Learning and Development. While early retention models proposed by Tinto and Bean included relatively few measures of students' perceptions of their learning and development during college, the models used by Cabrera, Nora, and their colleagues have included a variety of items asking students to assess the extent to which their college experiences influenced their learning and development. The measures included in the freshman survey were adapted from scales used by Pike (1993, 1995). He found that these measures were strongly related to students' college experiences. These items provided highly reliable estimates (0.94) of students' perceptions of their general learning and development.

Institutional Commitment. The institutional commitment construct used in this study represents the extent to which a student believes that it is important to obtain a degree from MU, and it is one of the most powerful predictors of persistence (Pascarella & Terenzini, 1980; Cabrera & Nora, 1994). Items included in the freshman survey were taken directly from Cabrera and Nora's (1994) research and produced a theta reliability value of 0.83.

Goal Commitment. The extent to which students are committed to graduating from any institution has been found to be less important than commitment to a specific institution (Cabrera & Nora, 1994). However, goal commitment remains a potentially important factor in persistence. Two items were included in the freshman survey and produced a theta reliability of 0.72.

Intent to Persist. In the freshman survey, intent to persist was measured by a single question: How likely is it that you will return to MU? While research has shown that the intent to persist rate exceeds actual persistence

rates, intent to not persist is an excellent indicator of voluntary freshman attrition.

Data Analyses

For the purposes of this study, all African-American, Asian-American, Hispanic, and Native-American students were classified as minority students. All Caucasian students were classified as non-minority students. Of the 799 students included in the research, 97 were minority students and 702 were non-minority students. Identification of group differences was a two step process paralleling procedures outlined by Kasworm and Pike (1994). First, analysis of variance (ANOVA) procedures were used to identify differences in means for the constructs included in this study. Because of the relatively large sample size, trivial differences could have produced statistically significant differences. Consequently, estimates of the variance in the construct measures explained by group membership (R^2) were calculated and used to assess the substantive importance of statistically significant results.

The second phase of the data analyses utilized structural equation modeling to assess the similarity of relationships among constructs. More specifically, the invariance of the model presented in Figure 1 was tested using the LISREL8 computer program (Jöreskog & Sörbom, 1993). Following procedures suggested by Kasworm and Pike (1994), several models were specified and tested. In the first model all structural equations were specified as being invariant across the two groups. However, correlations among constructs at the same level in the model were free to vary. Thus, the effects parameters for factors influencing academic integration were identical for the minority and non-minority groups, while the relationship between academic and social integration was free to vary across the two groups.

Subsequent models were selected using modification indices to identify parameters in structural equations that were not the same for both groups. In these models, both effects parameters and estimates of unexplained variance (i.e., structural disturbances) were relaxed. For example, if the effect of entering ability on academic achievement was found to be different for the two groups, that parameter and the estimate of unexplained variance in academic achievement would be allowed to vary freely.

Chi-square measures of model fit and chi-square change statistics were calculated to identify the model that

provided an appropriate explanation of the observed data. In these analyses a nonsignificant chi-square statistic indicated a model that accurately represented the observed data. A statistically significant chi-square change statistic indicated that freeing parameters for a given structural equation significantly improved goodness of model fit. Once the best-fitting model was selected, common metric standardized parameter estimates were evaluated to determine how the theoretical model was similar and different for minority and non-minority students (Jöreskog & Sörbom, 1993).

RESULTS

Mean Differences for Minority and Non-Minority Students

Group means for minority and non-minority students, along with estimates of explained variance, are presented in Table 1. An examination of these data reveal that non-minority students had a higher mean level of entering ability (2.83) and academic achievement (2.97) than did minority students (2.53 and 2.70, respectively). Non-minority students also were more positive in their evaluations of their first-year experiences than were minority students. It is noteworthy that minority students had significantly higher levels of faculty-student interaction than did non-minority students. No significant differences were observed for perceived gains, goal commitment, and intent to persist.

Insert Table 1 about here

As a general rule, the differences between minority and non-minority groups exhibited relatively low explanatory power. For statistically significant effects, estimates of explained variance generally ranged from 0.01 to 0.03. However, for two measures group differences evidenced greater explanatory power. The R^2 estimate for entering ability was 0.05, while the R^2 estimate for perceived discrimination was 0.08.

In sum, minority students had significantly lower levels of entering ability and subsequent academic achievement than did non-minority students. At the same time, minority students had less external encouragement and lower levels of perceived affinity of values than did non-minority students. Minority students also had lower

levels of academic and social integration, perceived quality, and institutional commitment than non-minority students. Minority students had significantly higher levels of faculty-student interaction and, not surprisingly, minority students had higher levels of perceived discrimination than did non-minority students. The observed differences in the means for minority and non-minority students suggest that minority students should have reported that they were significantly less likely to persist than non-minority students. However, this was not the case. There was not a statistically significant difference in intent to persist for the two groups. On its face, this suggested that the structural equations for the two groups were not the same.

Differences in the Model for Minority and Non-Minority Students

Table 2 presents the goodness of fit results for the invariance models specified and tested in the second phase of the research. As indicated in the table, the model in which all of the structural equations were invariant across groups produced a statistically significant chi-square result (χ^2=117.56, df=76, p<.01), indicating an ill-fitting model. Relaxing the constraints on the structural equation for academic achievement (i.e., allowing the effect of academic integration and the unexplained variance for academic achievement to vary across minority and non-minority groups) significantly improved the goodness of model fit ($\Delta\chi^2$=17.05, Δdf=2, p<.001). However, the chi-square value for the overall model was still statistically significant, indicating that additional constraints should be relaxed.

Insert Table 2 about here

Allowing the effect of social integration on goal commitment and the disturbance for the structural equation to vary freely also significantly improved model fit ($\Delta\chi^2$=86.31, Δdf=2, p<.001). While the overall model produced a non-significant chi-square result, modification indices suggested that freeing some of the parameters in another structural equation would improve model fit. Chi-square change tests confirmed that allowing the effects of academic achievement and satisfaction on intent to persist to vary across groups significantly improved model fit ($\Delta\chi^2$=10.37, Δdf=2, p<.01). For this equation, the modification indices also suggested that the structural disturbance

term should not be free to vary. Consequently, that term was not relaxed in the analyses.

Table 3 presents the common metric standardized effects parameters in the research model. The standardized effects parameters are similar to Betas in traditional multiple regression in that they provide indications of the relative strengths of effects. Unlike traditional Betas, which are standardized within groups, the common metric effects parameters are standardized between groups and allow for comparisons of standardized effects between minority and non-minority students. Effects parameters that differ for the two groups are presented in bold.

Insert Table 3 about here

Several things were immediately apparent from a comparison of effects parameters across groups. First, the data in Table 3 suggested that relationships were stronger among adjacent constructs. For example, the background and college experiences measures were significantly related to academic and social integration, but were relatively weak predictors of institutional commitment and intent to persist. In contrast, institutional commitment and intent to persist were most strongly related to each other, and both were significantly influenced by intermediate outcomes, such as perceived quality and academic achievement.

Second, the relationships between perceived discrimination and the other components in the model were surprising. Although there were substantial differences in minority and non-minority students' levels of perceived discrimination, the effects of perceptions of discrimination on other components in the model were identical for minority and non-minority students. Moreover, the direct effects of perceptions of discrimination were quite small. Perceptions of discrimination had a significant negative effect on academic integration indicating that high levels of perceived discrimination were associated with lower levels of academic integration. In addition, perceptions of discrimination, acting through academic integration, did have a significant indirect effect on academic achievement for minority students, but not for majority students. No other statistically significant effects for perceptions of discrimination were identified.

Differences in the indirect effects of perceptions of discrimination on the academic achievement of minority and non-minority students were due to differences in the effects of academic integration on academic

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achievement. For both minority and majority students, entering ability exerts a significant effect on academic achievement (0.49). For non-minority students, the effect of academic integration on achievement (0.47) was about the same as the effect for entering ability. For minority students, however, the influence of academic integration on grades (0.70) was much greater than the influence of entering ability.

Third, the models of intent to persist at MU were remarkably similar for both minority and non-minority students. Only 2 out of 12 effects parameters were different. However, these differences were significant. For minority students, academic achievement was not significantly related to intent to persist (0.01), while minority students' perceptions of the quality of their educational experiences exerted a significant positive effect on intent to persist (0.35). Exactly the opposite pattern was present for non-minority students. The academic achievement of non-minority students had a significant positive effect on intended persistence (0.22), while the effect of perceived quality was much weaker (0.09). The estimate of explained variance for minority students' intent to persist was substantially higher than the estimate for non-minority students (0.39 versus 0.28), largely because of the magnitude of the effect of perceived quality on intent to persist for minority students.

Differences in the effects of academic achievement and perceived quality on intent to persist for minority and non-minority students also influenced indirect effects on persistence. For example, the indirect effect of entering ability on intent to persist was substantially greater for non-minority students (0.11) than for minority students (0.01), owing to the significant effect of academic achievement on intent to persist for non-minority students. Conversely, the indirect effects of external encouragement (0.28 versus 0.22), affinity of values (0.15 versus 0.09), and social integration (0.18 versus 0.11) were moderately higher for minority students than for non-minority students.

DISCUSSION

Although previous studies have suggested current models of persistence may be inappropriate for minority students (e.g., Tierney, 1992), the present model's ability to explain a student's intention to persist in college was greater for minority students than for non-minority students. Furthermore, relatively few substantive differences were found between minority and non-minority students. As with all studies on persistence, however, the results of

this study are limited by the specific context of the study and the research method employed. The context for this study was a large research university where the majority of students live on campus. The potential effects of how the theory was operationalized into a testable model, what constructs were included in that model, and how the constructs were operationally defined and measured can also have particularistic effects on the findings. For instance, how persistence was measured in this study could be regarded as one limitation. However, intention not to persist is an excellent representation of voluntary attrition. In this case, because the focus of study was to identify campus-related factors that influence the student's voluntary decision to stay or leave, intention to persist may have been a more appropriate measure than actual retention.

In addition, special efforts were taken to enhance the internal validity of this study. Data were collected at a single university where freshmen students experienced relatively similar conditions: most of the students lived on campus, had similar course requirements, and interacted with peers, faculty, and staff who attended or worked at the same institution (e.g., see Cabrera & Nora, 1996). In light of these attributes and limitations, four findings are particularly noteworthy.

First, academic integration played a key role for minority students in contributing to their academic success. For both minority and non-minority students, academic integration was at least as important as entering ability in predicting academic achievement, and for minority students, academic integration was more important than entering ability in predicting first-year achievement. Some support for these findings has been reported in previous studies. However, there have been few if any studies that have demonstrated a distinction between minorities and non-minorities in this domain. Donovan (1984) posited that academic integration was a better predictor of freshmen academic performance than entering ability for a sample of African American students. Furthermore, at least one study concluded that minority students had "elevated" concerns about becoming academically integrated in college (Terenzini et al., 1994). In fact, some minority students intentionally avoided social opportunities because they feared it would "take" from their ability to become academically integrated in college. Although academic integration has always been considered an important aspect of making the adjustment to college for all students, this finding suggests that for minority students the relevance of academic integration is even more acute. It also emphasizes the responsibility that the institution has once minority students arrive on campus.

Because academic success may be as much (or more) of a product of academic integration as entering ability, institutional efforts to integrate minority students into the academic fabric of the university become critical to their academic success.

Interestingly, the academic performance of minority students did not help to predict their intentions to stay or leave the institution (although it did predict non-minority students' intentions). This finding is contrary to previous findings where a relationship was acknowledged between first-year GPA and persistence (e.g., Donovan, 1984; Cabrera & Nora, 1996; among others). Although this finding may be unique to this study, one implication is that administrators may have to be more cautious in assuming that the high (or low) academic performance of minority students signals their intentions to stay or leave the institution. Likewise, because the model in this study was better at predicting minority intentions to persist than non-minority intentions to persist, it hints that other factors were more important in explaining minority students' intention to persist. A minority student's perception of quality, for example, was a much better predictor of his or her intentions than academic performance. In addition, further research may reveal that academic performance exerts different effects on minority students' intentions to persist in contrast to their actual persistence. If this were the case, it would account for the different effects of academic achievement noted between this study and earlier findings (e.g., Donovan, 1984; Cabrera & Nora, 1996; among others).

A second key difference between minority and non-minority students was the influence of perceptions of quality on intentions to persist. For minority students, perceived quality had a significant effect on their intent to persist, while for non-minority students, perceived quality did not have an effect on their intent to persist. One explanation for this finding may be closely related to the traditional reputation MU has had with the minority community. Over the past several years MU had frequently been criticized for not making a concerted effort to recruit and retain minority students. Among some minority constituencies within the state, the university was perceived as being a difficult academic and social environment for minority students to be successful.

Whether these perceptions were right or wrong, they may have had an important impact on why minority students' perceptions of quality were instrumental in predicting their intentions to persist. That is, because minority students may have perceived MU as a somewhat challenging environment, their attention to perceived quality was

heightened before they arrived on campus. In addition, many of these students received attractive financial aid packages as an incentive to enroll at this institution. Consequently, their view of the value-cost relationship may have also lowered their perception of quality. Whatever the case, a first-year experience that established a high level of perceived quality among minority students also increased their likelihood of returning to campus.

Equally important were the factors that had significant effects on a minority students' perception of quality. These factors included external encouragement from family, affinity of values with faculty and other students, social integration, and academic integration. Clearly, the impact of academic integration should be highlighted because it was the most important determinate of a minority student's perception of quality. Although caution should be exercised in generalizing these findings, other predominantly-white institutions may have similar experiences when real efforts are made to recruit minority students. Their attention to and enhancement of perceived quality among minority students may prove to be very important to their persistence in college.

Third, although minority students generally perceived more discrimination than non-minority students, there were no differences in effects between the two groups of students in this model. Furthermore, for both groups perceived discrimination had a small direct effect on academic integration (negative) and a small indirect effect on intentions to persist (also negative). These results support the work of Cabrera and Nora (1996) and Hendricks et al. (in press) and again raise important questions regarding the effect of perceived discrimination on minority student persistence. Despite the presence of discrimination and prejudice, both of these studies revealed that minority students who were successful, in general, did not let the presence of discrimination interfere with their academic and career goals. Interestingly, support for this contention has been found on both a large, residential campus where the majority of respondents lived on campus (the present study) and among respondents who attended a large, commuter campus (see Cabrera & Nora, 1996).

Fourth, encouragement from family and friends had an important influence on minority and non-minority students' intentions to persist in college. This finding challenges some the theoretical applications of "rites of passage" (Tinto, 1986) but reinforces studies that have found external encouragement to be extremely important to minority as well as non-minority student persistence (e.g., Nora & Cabrera, 1992; Cabrera & Nora, 1996; Bean & Metzner, 1985; among others). In this study the primarily contributions of external encouragement were indirect,

working through perceived quality for minority students and through institutional commitment, social integration, and academic integration for both minority and non-minority students. In addition, the effect of external encouragement on persistence was no more (or less) important for minority students than it was for non-minority students.

CONCLUSION

Understanding how minority students differ from and are similar to non-minority students as they become integrated into college is critical to improving the retention of minority students. The present study has supported some of the research in this area, while raising concerns. In terms of the college adjustment process, this study's most important finding is that there are few substantive differences between minority and non-minority students. This finding was congruent with studies that have been designed to specifically examine the differences or similarities of minorities and non-minorities (e.g., Cabrera & Nora, 1996). This finding was generally less congruent with studies that have independently examined one population or the other.

Clearly, this area of research needs to be continued and expanded to include different students at different types of institutions. Nevertheless, the present study is important to institutional researchers, enrollment management directors, and college administrators for at least three reasons: First, this study provides a framework specifically designed to examine differences in the adjustment process for minorities and non-minorities on their campus. Understanding these differences can help campus administrators to develop retention programs that better reflect the unique and similar needs of minority and non-minority students. Second, the handful of studies that have been designed to explore differences between minority and non-minority students have been able to establish some consistent findings. As more studies are completed it is expected that this knowledge will be used by practitioners with increasing confidence. Third, given the recent court decisions in Maryland, California, and Texas, there is little doubt that the methods and means of recruiting and enrolling minority students will change dramatically (Thomson, 1996). These changes make it increasingly important for institutions to understand minority retention and to develop programs that will successfully enhance minority student persistence at their institution.

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Figure 1 Hypothesized Causal Model Constructs and Paths Tested

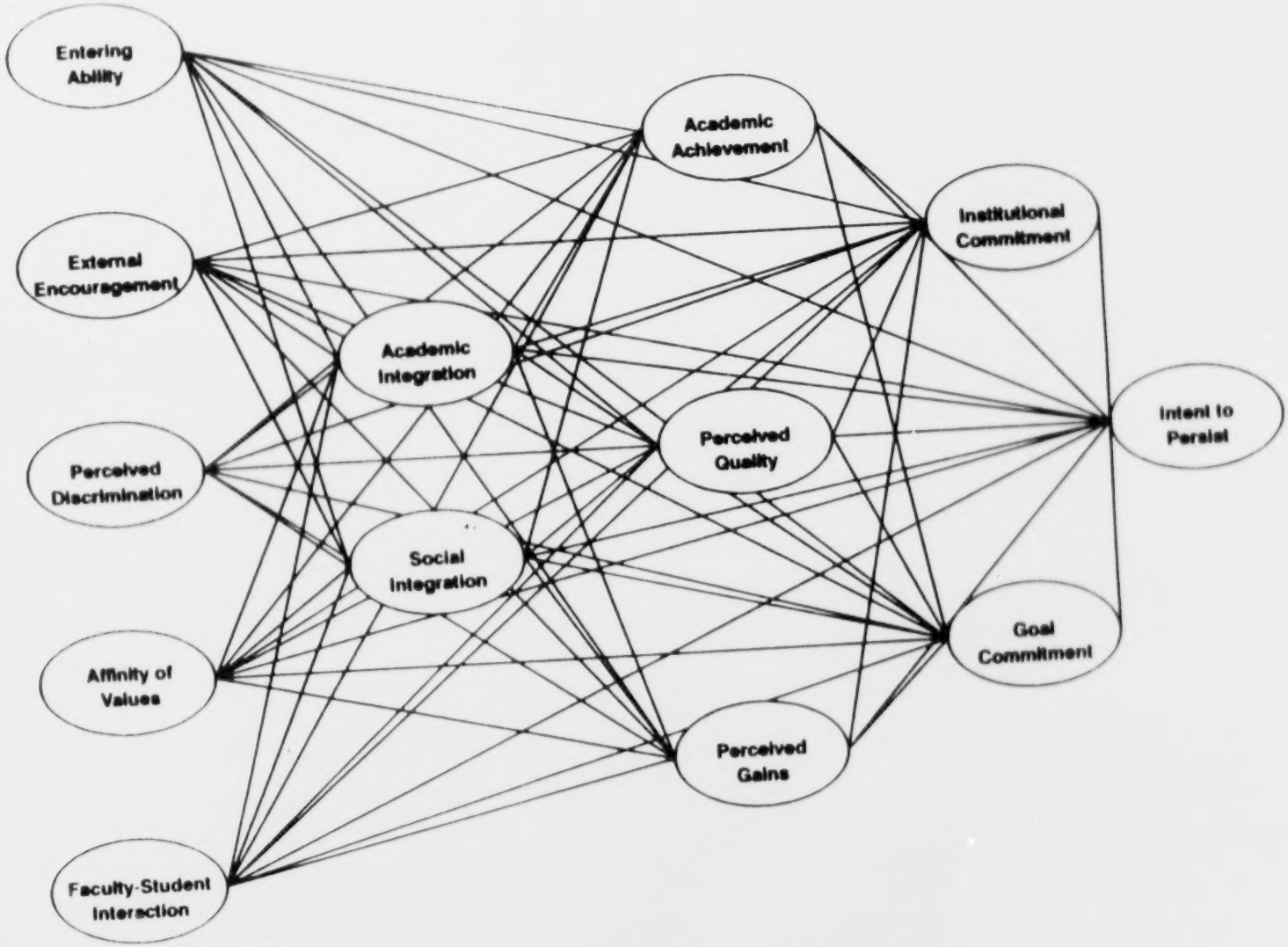

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Table 1. Differences Between Minority and Non-Minority Students on Selected Constructs

Construct	Minority n = 97	Non-Minority n = 702	R2
Entering Ability	2 53	2 83	0 05c
External Encouragement	3 07	3 3	0 01b
Perceived Discrimination	2 51	1 92	0 08c
Affinity of Values	2 48	2 7	0 02c
Faculty-Student Interaction	2 89	2 42	0 01b
Academic Integration	2 62	2 77	0 01b
Social Integration	2 7	3 02	0 03c
Academic Achievement	2 7	2 97	0 03c
Perceived Quality	2 99	3 21	0 03c
Perceived Gains	3 15	3 12	0 00
Institutional Commitment	2 81	3 09	0 02c
Goal Commitment	3 78	3 77	0 00
Intent to Persist	3 73	3 83	0 00

Table 2. Goodness of Fit Results for the Invariance Models

Model	df	x2	ddf	dx2
All Equations Invariant	76	117 56b	—	—
Academic Achievement Freed	74	100 51a	2	17 05c
Goal Commitment Freed	72	86 31	2	14 20c
Intent to Persist Freed	70	75 94	2	10 37b

Table 3. Common Metric Effects Parameters for the Minority and Non-Minority Models

Explanatory Constructs	Academic Integration	Social Integration	Academic Achievement	Perceived Quality	Perceived Gains	Institutional Commitment	Goal Commitment	Intent to Persist
Entering Ability	**0.25c**	**0.02**	**0.49c**	**0.03**	**-0.06**	**-0.04**	**-0.01**	**0.04**
	0.25c	0.02	0.49c	0.03	-0.06	-0.04	-0.01	0.04
External Encouragement	**0.17c**	**0.36c**	**0.00**	**0.20c**	**0.09b**	**0.37c**	**0.11b**	**0.10a**
	0.17c	0.36c	0.00	0.20c	0.09b	0.37c	0.11b	0.10a
Perceived Discrimination	**-0.10b**	**0.02**	**0.01**	**-0.03**	**-0.05**	**-0.04**	**-0.03**	**0.05**
	-0.10b	0.02	0.01	-0.03	-0.05	-0.04	-0.03	0.05
Affinity of Values	**0.11b**	**0.26c**	**-0.06a**	**0.16c**	**0.16c**	**0.10b**	**0.16c**	**0.05**
	0.11b	0.26c	-0.06a	0.16c	0.16c	0.10b	0.16c	0.05
Faculty-Student Interaction	**0.16c**	**0.10b**	**-0.04**	**0.07a**	**0.15c**	**-0.03**	**0.04**	**0.00**
	0.16c	0.10b	-0.04	0.07a	0.15c	-0.03	0.04	0.00
Academic Integration			**0.70c**	**0.41c**	**0.27c**	**-0.01**	**0.09a**	**-0.10a**
			0.47c	0.41c	0.27c	-0.01	0.09a	-0.10a
Social Integration			**-0.02**	**0.22c**	**0.20c**	**0.21c**	**-0.09**	**0.02**
			-0.02	0.22c	0.20c	0.21c	**0.12b**	0.02
Academic Achievement						**-0.06**	**0.13b**	**0.01**
						-0.06	0.13b	**0.22c**
Perceived Quality						**0.29c**	**-0.07**	**0.35c**
						0.29c	-0.07	**0.09a**
Perceived Gains						**0.00**	**0.02**	**-0.01**
						0.00	0.02	-0.01
Institutional Commitment								**0.37c**
								0.37c
Goal Commitment								**-0.06**
								-0.06

Notes:

1. The shaded rows represent the parameters for minorities; the unshaded rows represent the parameters for non-minorities.
2. The bolded effects parameters denote statistically significant differences between minorities and non-minorities.

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